

## REMARKS

Claims 1-17 are pending in the application. Applicants request reconsideration of the rejections detailed in the Office Action based upon the following comments.

### *Claim Rejections – 35 U.S.C. § 112*

Claims 1-11 are rejected under the first paragraph of 35 U.S.C. § 112 for purportedly containing subject matter that was not adequately described in the specification. Specifically, the Office Action refers to  $T_1$  and  $T_2$ .

Applicants respectfully traverse this rejection. Claim 1 details that  $T_1$  is a temperature for “pressing the mold against the base material.” As noted by the Examiner, this claim language is supported by the specification on page 7, line 2. Furthermore, Applicants submit that the temperature for “pressing the mold against the base material” is analogous to the statement that  $T_1$  is the “molding temperature.” One skilled in the art would readily understand that the “molding temperature” is equivalent to the temperature for “pressing the mold against the base material.” Furthermore, the language detailed in claim 1 is fully supported in the specification, which even describes an actual reduction to practice of the invention.

Similarly, Applicants submit that stating  $T_2$  is a temperature for “separating the mold from the base material” is analogous to stating that  $T_2$  is a “mold releasing temperature.” In the context of the present disclosure, the wording “separating” and “releasing” mean the same thing.

Applicants respectfully submit that one skilled in the art would readily understand the above referenced descriptions regarding temperatures  $T_1$  and  $T_2$ . The Examiner has failed to provide sufficient evidence why a person ordinarily skilled in the art would not be placed in possession of the claimed invention in view of the disclosure as filed. As discussed above, the Examiner made an explicit reference to the pages and paragraphs in the specification where the claim language was supported. Applicants also submit that the meaning of “temperature for pressing” and “temperature for releasing” are readily apparent as they are detailed on page 11 of the specification.

For the reasons stated above, Applicants request that the rejections under the first paragraph of 35 U.S.C. § 112 be withdrawn.

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Claims 1-11 are rejected under the second paragraph of 35 U.S.C. § 112 for allegedly being indefinite because  $T_1$  is unclear. Applicants respectfully traverse this rejection because claim 1 clearly states that  $T_1$  is a temperature for pressing the mold against the base material. In the exemplary embodiment, the mold corresponds to part 13 as described at the second paragraph of page 11. Applicants are unsure why the Examiner is making reference to a “top” and “bottom” mold (there is an upper heating block 11 and a lower heating block 12 detailed in the specification).

Regarding the Examiner’s concerns relating to the temperature for separating the mold from the base material, Applicants submit that sufficient explanation is provided in the specification on page 11.

Applicants note the Examiner’s concerns regarding claim 9 and have amended this claim to be independent in accordance with the Examiner’s suggestion.

Applicants requests that the aforementioned rejections be withdrawn.

***Claim Rejections – 35 U.S.C. § 102***

Claims 1-5, 7 and 10 are rejected as being anticipated by Greschner (US 5,427,599). Applicants respectfully traverse this rejection because the cited patent fails to inherently or explicitly teach every feature of the claimed invention.

The Examiner asserts that Greschner discloses a molding temperature of 600° C and a releasing temperature of 380-450° C. Applicants dispute this interpretation of the cited patent. Greschner discloses that temperatures in excess of 600° C are the *softening point of the glass types used* and that the actual stamp (molding) temperature should be lower than the *transformation temperature of the glass types used*. That is, the molding temperature is lower than 380-450° C.<sup>1</sup> The temperature ranges discussed in Greschner do not correspond to the molding temperatures or releasing temperatures as set forth in the Office Action.

Greschner, however, does disclose that the glass substrate is cooled after the forming process.<sup>2</sup> This disclosure has nothing to do with the temperature for separating the mold from the base material, but rather details that after the stamp or mold is removed from the substrate, the substrate is cooled.

The disclosure of Greschner fails to anticipate the method detailed in claim 1. Claim 1 details that the temperature when the transcription face of the mold is pressed against the base material is greater than or equal to the temperature when the mold is

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<sup>1</sup> US 5,427,599 column 4 lines 35-45.

<sup>2</sup> US 5,427,599 column 4 lines 5-15 and column 5 lines 50-60.

forcibly separated from the base material. Likewise the claims dependant on claim 1 (claims 2-5, 7 and 10) would not be anticipated by the cited patent. As such, Applicants request that the anticipation rejection be withdrawn.

***Claim Rejections – 35 U.S.C. § 103***

Claims 6, 8, 9, and 11 are rejected as obvious based upon Greschner.

Applicants respectfully request that the rejection of dependant claims 6, 8, and 11 be withdrawn for the reasons discussed above. These claims are dependant on claim 1, which is not anticipated or obvious in view of the cited prior art.

Applicants also submits that independent claim 9 is also not obvious in view of the cited prior art. The cited prior art does not provide any teachings, hints, or suggestions regarding the molding and release temperatures.

***New Claims***

Applicant respectfully submits that the new claims are also allowable because they depend on claims that are not anticipated or obvious in light of the cited prior art. Support for the new claims can be found on pages 11 and 13 of the specification.

**CONCLUSION**

Applicants respectfully request allowance of the application. If any additional fees are due in connection with the filing of this response, such as fees under 37 C.F.R. §§ 1.16 or 1.17, please charge the fees to Deposit Account No. 02-4300. Any overpayment can be credited to Deposit Account No. 02-4300.

Respectfully submitted,

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Signature:



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9. A micro-shape transcription apparatus comprising:

- a first mold means provided with a transcription face having a micro-shape;
- a second mold means facing the first mold and holding a base material thereon;
- a mechanism for driving at least one of the first and second mold means;
- a heating source for controlling temperatures of the first and second mold means such

that when a temperature for pressing the transcription face against the base material is  $T_1$  ( $^{\circ}\text{C}$ ), a temperature for separating the transcription face from the base material is  $T_2$  ( $^{\circ}\text{C}$ ), thermal expansion coefficients of the transcription face and the base material are  $\alpha_a$  and  $\alpha_b$ , and a maximum distance between a transcription center of the transcription face and a concavo-convex pattern is  $d$  (mm), the following relations (1) and (2):

$$T_1 \geq T_2 \quad \dots(1)$$

$$|\alpha_a - \alpha_b| \cdot (T_1 \geq T_2) \cdot d \leq 4 \times 10^{-2} \quad \dots(2)$$

are simultaneously satisfied; and

a vacuum chuck for attracting and fixing the base material to the second mold means.

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12. The micro-shape transcription method of claim 1, wherein  $T_1$  is up to  $180^{\circ}\text{C}$ .

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13. The micro-shape transcription method of claim 1, wherein  $T_2$  is  $150^{\circ}\text{C}$ .

14. The micro-shape transcription method of claim 1, wherein  $T_1$  is  $160^{\circ}\text{C}$  and  $T_2$  ranges from  $100$ - $140^{\circ}\text{C}$ .

15. The micro-shape transcription method of claim 1, wherein  $T_1$  is  $180^\circ\text{C}$  and  $T_2$  ranges from  $100\text{--}150^\circ\text{C}$ .

sub<sup>3</sup>  
A2 16. The micro-shape transition apparatus according to claim 9, wherein  $T_1$  is  $160^\circ\text{C}$  and  $T_2$  ranges from  $100\text{--}140^\circ\text{C}$ .

17. The micro-shape transition apparatus according to claim 9, wherein  $T_1$  is  $180^\circ\text{C}$  and  $T_2$  ranges from  $100\text{--}150^\circ\text{C}$ .

9. (amended) A micro-shape transition apparatus comprising:

a first mold means provided with a transcription face having a micro-shape[,];  
a second mold means facing the first mold[,]  
and holding a base material thereon;  
a mechanism for driving [either] at least one of the first and second [molds,] mold means;  
a heating source for controlling temperatures of the first and second [molds,] mold means  
such that when a temperature for pressing the transcription face against the base material is  $T_1$   
(°C), a temperature for separating the transcription face from the base material is  $T_2$  (°C), thermal  
expansion coefficients of the transcription face and the base material are  $\alpha_a$  and  $\alpha_b$ , and a  
maximum distance between a transcription center of the transcription face and a concavo-convex  
pattern is  $d$  (mm), the following relations (1) and (2):

$$T_1 > T_2 \dots (1)$$

$$|\alpha_a - \alpha_b| \cdot (T_1 - T_2) \cdot d \leq 4 \times 10^{-2} \dots (2)$$

are simultaneously satisfied; and

a vacuum chuck for attracting and fixing [a] the base material to the second mold  
means[, wherein a micro-shape is transcribed in accordance with the micro-shape transcription  
method of claim 1 or 2].

12. (new) The micro-shape transcription method of claim 1, wherein  $T_1$  is up to 180°C.

13. (new) The micro-shape transcription method of claim 1, wherein  $T_2$  is 150°C.

14. (new) The micro-shape transcription method of claim 1, wherein  $T_1$  is 160°C and  $T_2$  ranges  
from 100-140°C.

15. (new) The micro-shape transcription method of claim 1, wherein  $T_1$  is  $180^{\circ}\text{C}$  and  $T_2$  ranges from  $100\text{-}150^{\circ}\text{C}$ .

16. (new) The micro-shape transition apparatus according to claim 9, wherein  $T_1$  is  $160^{\circ}\text{C}$  and  $T_2$  ranges from  $100\text{-}140^{\circ}\text{C}$ .

17. (new) The micro-shape transition apparatus according to claim 9, wherein  $T_1$  is  $180^{\circ}\text{C}$  and  $T_2$  ranges from  $100\text{-}150^{\circ}\text{C}$ .